

FERROXCUBE POT CORES

WHY USE POT CORES?

NUMBERING SYSTEM

$\pm 25\%$ TOLERANCE "P" TYPE

**$\pm 3\%$ TOLERANCE "P" TYPE
(International Standard)**

ADJUSTABLE "P" TYPE

ACCESSORIES FOR POT CORES



FERROXCUBE
CORPORATION OF AMERICA
SAUGERTIES, NEW YORK

**POT CORE
SHORT FORM
CATALOG**

Bulletin 102

MATERIAL & PRE-ADJUSTMENT LISTING

		Bul. 330	Standard "A _L " Inductance Pre-Adjustment — Bulletin 220													
Size	Mat'l	"L00"	A25	A40	A60	A100	A160	A250	A315	A400	A600	A630	A820	A1000	A1250	A1600
743P (7 mm O.D.)	3E	X														
332P (9 mm O.D.)	3E	X														
1107P (11 mm O.D.)	3B7	X				X	X	X								
	3D3	X		X	X	X										
	4C4	X	X	X												
1408P (14 mm O.D.)	3B7	X				X	X	X								
	3B9	X			X	X	X									
	3D3	X		X	X	X										
	3E	X														
	4C4	X	X	X												
1811P (18 mm O.D.)	3B7	X					X	X		X						
	3B9	X			X	X	X	X								
	3D3	X		X	X	X	X									
	3E	X														
	4C4	X	X	X												
2213P (22 mm O.D.)	3B7	X					X	X		X	X					
	3B9	X				XX	X	X		X	X					
	3D3	X			X	X	X									
	3E	X														
	4C4	X		X	X											
2616P (26 mm O.D.)	3B7	X						X		X	X			X		
	3B9	X					X	X		X	X					
	3D3	X				X	X									
	3E	X														
	4C4	X			X	X										
3019P (30 mm O.D.)	3B7	X								X	X			X		X
	3D3	X				X	X	X								
3622P (36 mm O.D.)	3B7	X								X	X			X		X
	3B5*	X								X	X		X	X		
	3D3	X					X	X		X						
	3E	X														
4229P (42 mm O.D.)	3B7	X								X	X			X		X

- NOTE: 1) Pre-adjustment not shown with (X) are considered non-standard but are available upon special request.
 2) Pre-adjustment shown with (XX) are considered standard but will not be shown in new catalog bulletin 220 at this time.
 3) Basic cores (L00) for transformer applications in materials other than shown with (X) are not available at this time.
 4) (*) The 3622P core size will presently be available in 3B5 rather than 3B9.

MATERIAL SPECIFICATIONS *

PARAMETERS	3B7	3B9	3D3	3E	4C4
$\mu_o (\pm 20\%)$	2300	1800	750	2700	125
Loss Factor $\tan \delta = \frac{1}{\mu_o Q}$ (at $B < 1$ gauss) 4kc/s 100kc/s 500kc/s 1000kc/s 5000kc/s 10000kc/s	$\leq 1 \times 10^{-6}$ $\leq 5 \times 10^{-6}$ $\pm 25 \times 10^{-6}$ $\pm 120 \times 10^{-6}$	$\leq 2 \times 10^{-6}$ $\leq 6 \times 10^{-6}$ $\pm 25 \times 10^{-6}$ $\pm 120 \times 10^{-6}$	$\pm 2 \times 10^{-6}$ $\pm 5 \times 10^{-6}$ $\leq 14 \times 10^{-6}$ $\leq 30 \times 10^{-6}$	$\leq 2.5 \times 10^{-6}$ $\leq 15 \times 10^{-6}$ $\leq 90 \times 10^{-6}$	$\pm 40 \times 10^{-6}$ $\pm 40 \times 10^{-6}$ $\leq 40 \times 10^{-6}$ $\leq 60 \times 10^{-6}$ $\leq 100 \times 10^{-6}$
Temperature Factor (Min.) (Max.) Temp. Range (°C)	-0.6×10^{-6} $+0.6 \times 10^{-6}$ ± 20 to ± 70	Linear $+0.8 \times 10^{-6}$ $+2.0 \times 10^{-6}$ -30 to $+70$	Linear $+1.0 \times 10^{-6}$ $+3.0 \times 10^{-6}$ -30 to $+70$	$+4 \times 10^{-6}$ ± 20 to ± 50	-10×10^{-6} 0 ± 20 to ± 55
Disaccommodation Factor (10 min-100 min)	$< 3.5 \times 10^{-6}$	$< 4.4 \times 10^{-6}$	$< 12.7 \times 10^{-6}$	$< 4.7 \times 10^{-6}$	$< 25 \times 10^{-6}$
Hysteresis Factor $Q_2(24-100)$	≤ 1.8	≤ 1.8	≤ 3	≤ 4	
Curie Temperature	$\geq 170^\circ\text{C}$	$\geq 145^\circ\text{C}$	$\geq 150^\circ\text{C}$	$\geq 125^\circ\text{C}$	$\geq 300^\circ\text{C}$
Practical Freq. Range	to 300 kc/s	to 300 kc/s	200 kc/s to 2.5 mc/s	to 500 kc/s	1 to 20 mc/s

*As measured on a 1" O.D. toroid.

†Typical Values.

POT CORE CROSS REFERENCE

MATERIAL		SIZE			
Obsolete Materials	New Materials	Obsolete Sizes			New Sizes
3B	3B9 or 3D3	S14/8 Series	K3-000-30/44	56-580-06/32	1107P, 1408P
3B2	3B9 or 3D3	S18/12 Series	K3-000-45/47	56-580-34/36	1408P, 1811P
3B3	3B9 or 3D3	S25/16 Series	K3-000-60/66	56-580-40/43	2213P, 2616P
3B5	3B9	S35/23 Series	K3-001-00/06	K5-350-20/21	3019P, 3622P
3C	3B9 or 3D3	7F160			1408P
3C2	3B9	486P160			1408P
3C3	3E	383P250			1811P
		465P250			1811P
101	3D3	505F375			2213P
102	3D3 or 4C4	576P500			2616P
103	4C4	398P312			2616P
104	4C4	398P360			2616P
105	4C4	794P500			3622P
106	4C4				
4A	3D3				
4B	3D3 or 4C4				
4C	4C4				



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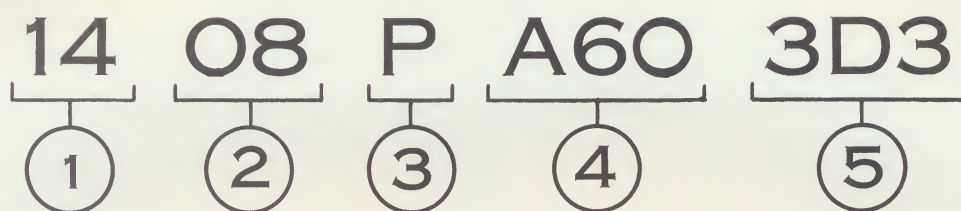
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FERROXCUBE

POT CORES

Bulletin 202

POT CORE NUMBERING SYSTEM



1. Nominal O.D. in millimeters.
2. Nominal height of core pair assembly in millimeters.
3. P = Pot Core only.
C = Pot Core and adjustor assembly.
B = Pot Core and non-preferred adjustor assembly.
4. Factory Adjustment, i.e.,
A60—denotes preadjusted inductance value of 60 mh/1000 turns per core *pair*.
L00—denotes not preadjusted. (un-gapped pot core piece)
5. Ferrite Core Material



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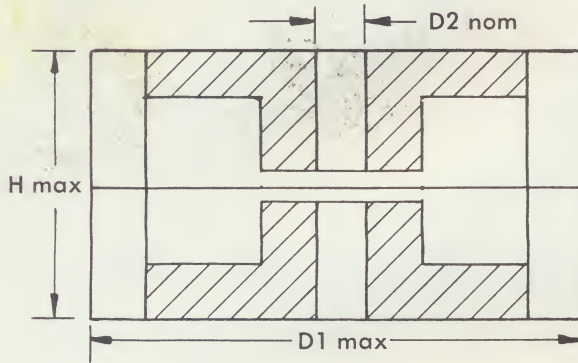
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FERROXCUBE
3% TOLERANCE
"P" TYPE POT CORES

Bulletin 206A

±3%, INTERNATIONAL STANDARD PRE-ADJUSTED "P" TYPE POT CORES

(SEE BULLETIN 207A FOR ADJUSTABLE MODELS)



This matched pair pot core series features optimum mechanical dimensions for best electrical characteristics. The core halves are pre-adjusted to an electrically determined specification and are available in matched pairs to inductance specification with a tolerance of better than $\pm 3\%$. These pot cores provide the optimum in precision temperature stabilized inductors and transformers. By choosing the ferrite core material best suited for the application; an inductive component can be obtained with: 1) High "Q" factor, 2) Excellent temperature stability, 3) Tight inductive tolerances without further adjustment.

FERROXCUBE MATERIALS

3B7: Reference $\mu_0 = 2300$

Suggested Frequency Range — up to 300 Kc.

Temperature Coefficient—lowest, over temperature range of $+20^\circ\text{C}$ to $+70^\circ\text{C}$.

3B9: Reference $\mu_0 = 1800$

Suggested Frequency Range — up to 300 Kc

Temperature Coefficient—Positive linear over wide temperature range of -30°C to $+70^\circ\text{C}$.

3D3: Reference $\mu_0 = 750$

Suggested Frequency Range — 200 Kc to 2.5 Mc

Temperature Coefficient—Positive linear over wide temperature range of -30°C to $+70^\circ\text{C}$.

4C4: Reference $\mu_0 = 125$

Suggested Frequency Range — 1 Mc to 20 Mc.

Temperature Coefficient—Negative over temperature range of $+20^\circ\text{C}$ to $+55^\circ\text{C}$.

DEFINITIONS

A_L is pre-adjusted nominal inductance in millihenrys per 1000 turns.

μ_e is effective permeability of pot core pair.

T.C. is temperature coefficient of inductance in parts per million per $^\circ\text{C}$.

NOTE: Inductances other than shown below are available on special request. In tabulation below, winding area is given for a single section bobbin.
HD (PCB Type) is standard. H (Clamp Type) is non standard but available on special request.

Nominal Core Diameter	Part Number	ELECTRICAL					MECHANICAL	ACCESSORIES	
		A_L (mh/1000 turns)	μ_e	Tolerances	TC Min. Max.	Winding Area (in. ²)	Dimensions (in.)	Bobbins	Mounting Hardware
11 mm	1107P-A100-3B7	100	76	$\pm 1\%$	-46 +46	0.0083	D1 = .445 max. D2 = .081 nom. H = .264 max.	1107F1L	1107HD
	1107P-A160-3B7	160	122	$\pm 1.5\%$	-73 +73				
	1107P-A250-3B7	250	190	$\pm 3\%$	-114 +114				
	1107P-A40-3D3	40	31	$\pm 3\%$	+31 +93				
	1107P-A60-3D3	60	46	$\pm 3\%$	+46 +138				
	1107P-A100-3D3	100	76	$\pm 3\%$	+76 +228				
	1107P-A25-4C4	25	19	$\pm 3\%$	-190 0				
	1107P-A40-4C4	40	31	$\pm 3\%$	-310 0				
14 mm	1408P-A100-3B7	100	60	$\pm 1\%$	-36 +36	0.015	D1 = .559 max. D2 = .122 nom. H = .334 max.	1408F1D 1408F2D	1408HD (1408H)
	1408P-A160-3B7	160	96	$\pm 1.5\%$	-58 +58				
	1408P-A250-3B7	250	150	$\pm 2\%$	-90 +90				
	1408P-A60-3B9	60	36	$\pm 3\%$	+29 +72				
	1408P-A100-3B9	100	60	$\pm 3\%$	+48 +120				
	1408P-A160-3B9	160	96	$\pm 3\%$	+77 +192				
	1408P-A40-3D3	40	24	$\pm 3\%$	+24 +72				
	1408P-A60-3D3	60	36	$\pm 3\%$	+36 +108				
	1408P-A100-3D3	100	60	$\pm 3\%$	+60 +180				
	1408P-A25-4C4	25	15	$\pm 3\%$	-150 0				
	1408P-A40-4C4	40	24	$\pm 3\%$	-240 0				

Nominal Core Diameter	Part Number	ELECTRICAL					MECHANICAL	ACCESSORIES	
		A _L (mh/1000 turns)	μ _e	Tolerances	TC Min. Max.	Winding Area (in. ²)	Dimensions (in.)	Bobbins	Mounting Hardware
18 mm	1811P-A160-3B7	160	73	±1%	-44 +44	0.029	D1= .716 max. D2= .122 nom. H = .428 max.	1811F1D 1811F2D 1811F3D	1811HD (1811H)
	1811P-A250-3B7	250	114	±1.5%	-69 +69				
	1811P-A400-3B7	400	182	±2%	-109 +109				
	1811P-A60-3B9	60	27	±3%	+22 +54				
	1811P-A100-3B9	100	45	±3%	+36 +90				
	1811P-A160-3B9	160	73	±3%	+58 +146				
	1811P-A250-3B9	250	114	±5%	+92 +228				
	1811P-A40-3D3	40	18	±3%	+18 +54				
	1811P-A60-3D3	60	27	±3%	+27 +81				
	1811P-A100-3D3	100	45	±3%	+45 +135				
	1811P-A160-3D3	160	73	±3%	+73 +219				
	1811P-A25-4C4	25	11	±3%	-110 0				
	1811P-A40-4C4	40	18	±3%	-180 0				
22 mm	2213P-A160-3B7	160	63	±1%	-38 +38	0.046	D1= .858 max. D2= .177 nom. H = .538 max.	2213F1D 2213F2D 2213F3D	2213HD (2213H)
	2213P-A250-3B7	250	98	±1.5%	-59 +59				
	2213P-A400-3B7	400	156	±2%	-94 +94				
	2213P-A600-3B7	600	234	±3%	-140 +140				
	2213P-A100-3B9	100	39	±3%	+31 +78				
	2213P-A160-3B9	160	63	±3%	+50 +125				
	2213P-A250-3B9	250	98	±3%	+78 +195				
	2213P-A400-3B9	400	156	±3%	+125 +312				
	2213P-A600-3B9	600	234	±5%	+190 +468				
	2213P-A60-3D3	60	23	±3%	+23 +70				
	2213P-A100-3D3	100	39	±3%	+39 +117				
	2213P-A160-3D3	160	63	±3%	+63 +169				
	2213P-A40-4C4	40	16	±3%	-160 0				
	2213P-A60-4C4	60	23	±3%	-234 0				
26 mm	2616P-A250-3B7	250	77	±1%	-46 +46	0.063	D1=1.024 max. D2= .216 nom. H = .640 max.	2616F1D 2616F2D 2616F3D	2616HD (2616H)
	2616P-A400-3B7	400	123	±2%	-74 +74				
	2616P-A600-3B7	600	185	±3%	-111 +111				
	2616P-A1000-3B7	1000	310	±3%	-186 +186				
	2616P-A160-3B9	160	49	±3%	+39 +98				
	2616P-A250-3B9	250	77	±3%	+61 +154				
	2616P-A400-3B9	400	123	±3%	+98 +246				
	2616P-A600-3B9	600	185	±3%	+148 +370				
	2616P-A100-3D3	100	31	±3%	+31 +93				
	2616P-A160-3D3	160	49	±3%	+49 +147				
	2616P-A60-4C4	60	19	±3%	-185 0				
	2616P-A100-4C4	100	31	±3%	-310 0				
30 mm	3019P-A400-3B7	400	105	±1.5%	-63 +63	0.091	D1=1.201 max. D2=0.217 nom. H =0.754 max.	3019F1D 3019F2L 3019F3L	3019HD
	3019P-A600-3B7	600	157	±2%	-95 +95				
	3019P-A1000-3B7	1000	263	±3%	-158 +158				
	3019P-A1600-3B7	1600	420	±3%	-252 +252				
	3019P-A100-3D3	100	26	±3%	+26 +65				
	3019P-A160-3D3	160	42	±3%	+42 +105				
36 mm	3622P-A400-3B7	400	82	±1.5%	-49 +49	0.116	D1=1.418 max. D2=0.217 nom. H =0.880 max.	3622F1D 3622F2D 3622F3L	3622HD
	3622P-A600-3B7	600	122	±2%	-73 +73				
	3622P-A1000-3B7	1000	204	±3%	-122 +122				
	3622P-A1600-3B7	1600	326	±3%	-195 +195				
	3622P-A400-3B9	400	82	±3%	+66 +164				
	3622P-A600-3B9	600	122	±3%	+97 +244				
	3622P-A1000-3B9	1000	204	±5%	+163 +408				
	3622P-A160-3D3	160	33	±3%	+33 +99				
	3622P-A250-3D3	250	51	±3%	+51 +153				
	3622P-A400-3D3	400	82	±3%	+88 +246				
42 mm	4229P-A400-3B7	400	81	±1%	-49 +49	0.217	D1=1.697 max. D2= .217 nom. H =1.162 max.	4229F1L 4229F2L	4229HD
	4229P-A600-3B7	600	122	±2%	-74 +74				
	4229P-A1000-3B7	1000	205	±3%	-123 +123				
	4229P-A1600-3B7	1600	325	±3%	-195 +195				



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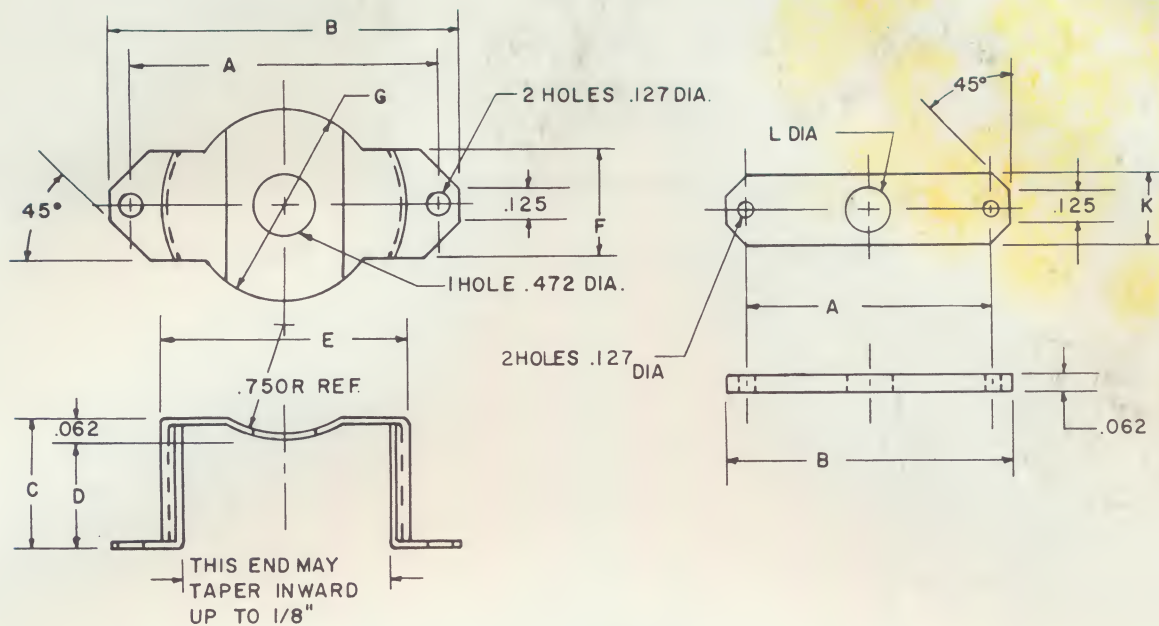


Fig. 3

Assembly Part No.	Component Part No.	A	B	C	D	E	F	G	K	L	Material	Applicable Pot Core
2616H	2616HS	1.292	1.512	.697	.630	1.026	.590	.944	—	—	Nickel-Silver	2616P
	2616HB	1.292	1.512	—	—	—	—	—	.590	.472	See Note 1	
	2616HW			O.D. = .980	I.D. = .500	HT. = .010					Bakelite	

Note 1. Half hard brass-cadmium plated or hot tin dipped.



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**FERROXCUBE
ACCESSORIES
FOR POT CORES**

Bulletin 211

MOUNTING HARDWARE, "P" TYPE POT CORES

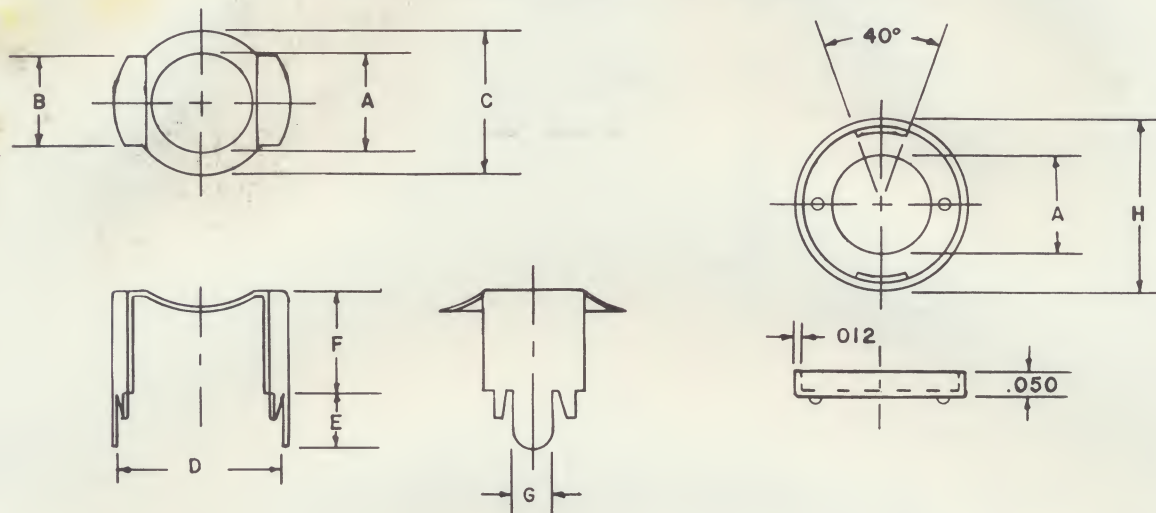


Fig. 1

Assembly Part No.	Component Part No.	A	B	C	D (Min.)	E	F	G	H (Max.)	Material	Applicable Pot Core
1408H	1408HC 1408HBP 1408HW	.354 .354	.354 —	.511 —	.555 —	.185 —	.370 —	.121 —	— .594	Nickel Silver See Note 1 Bakelite	1408P
1811H	1811HC 1811HBP 1811HW	.354 .354	.393 —	.669 —	.720 —	.185 —	.484 —	.121 —	— .752	Nickel Silver See Note 1 Bakelite	1811P
				O.D. = .540	I.D. = .365	HT. = .008					
				O.D. = .700	I.D. = .365	HT. = .008					

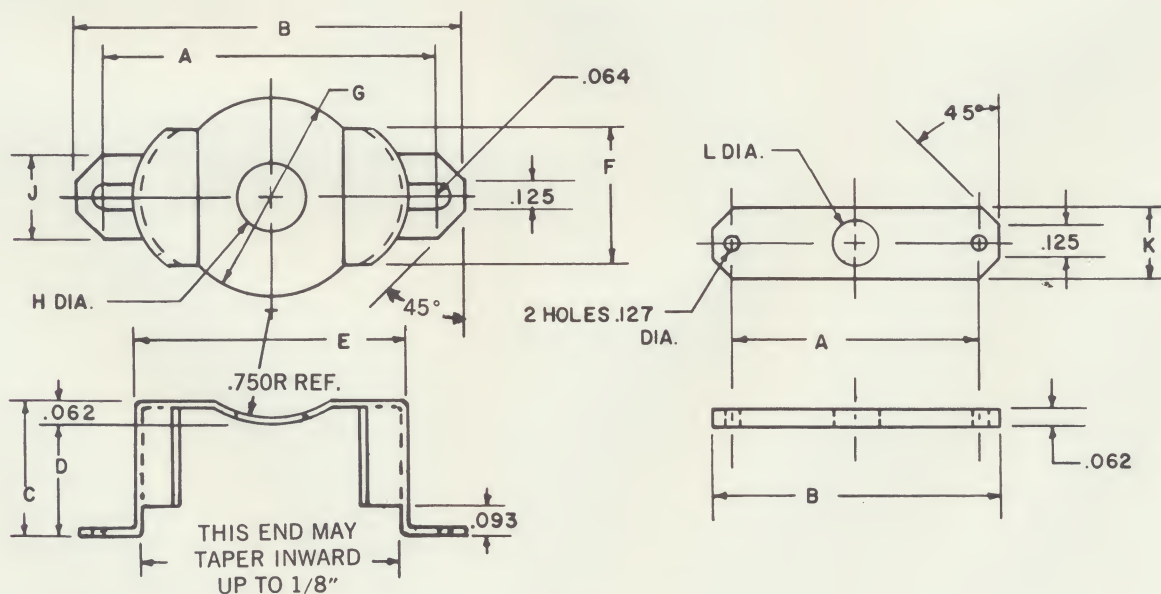


Fig. 2

Assembly Part No.	Component Part No.	A	B	C	D	E	F	G	H	J	K	L	Material	Applicable Pot Core
2213H	2213HS 2213HB 2213HW	1.102 1.102	1.299 1.299	.595 —	.528 —	.868 —	.551 —	.787 —	.314 —	.375 —	— .551	— .355	Nickel Silver See Note 1 Bakelite	2213P
					O.D. = .830	I.D. = .324	HT. = .010							

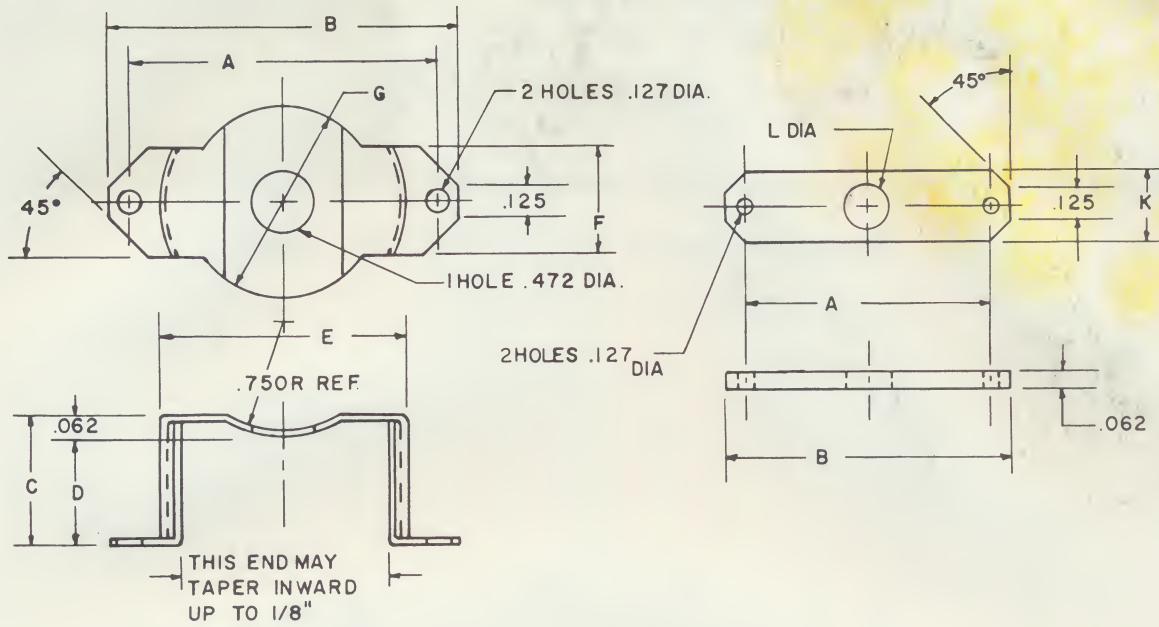


Fig. 3

Assembly Part No.	Component Part No.	A	B	C	D	E	F	G	K	L	Material	Applicable Pot Core
2616H	2616HS	1.292	1.512	.697	.630	1.026	.590	.944	—	—	Nickel-Silver	2616P
	2616HB	1.292	1.512	—	—	—	—	—	.590	.472	See Note 1	
	2616HW			O.D. = .980	I.D. = .500	HT. = .010					Bakelite	

Note 1. Half hard brass-cadmium plated or hot tin dipped.

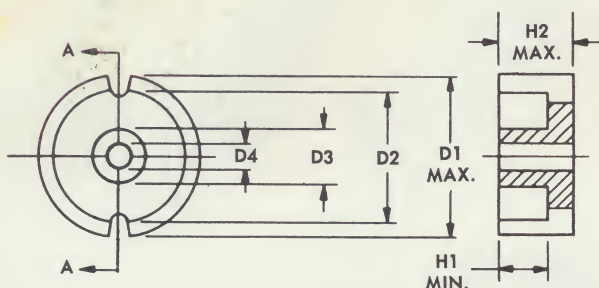


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 SAUGERTIES, NEW YORK

FERROXCUBE
TRANSFORMER CORES
 (International Standard Sizes)
 Preliminary Bulletin 330



All dimensions nominal
 except as noted.

Ferroxcube Transformer Cores, specifically designed for low frequency transformer and non-critical inductor application, provide an inductance tolerance of $\pm 25\%$ max. The pot core configuration provides maximum utilization of core permeability as well as superior electrical performance. These cores are offered in a complete range of sizes and ferrite materials for maximum design flexibility. Consult Bulletin 102 for pertinent ferrite core material specifications.

Nom. Core Dia.	Part No. (See Note 4)	ELECTRICAL (Note 1)				MECHANICAL*	ACCESSORIES*	
		A_L ($\pm 25\%$) (mh/1000 turns)	μ_e (Reference)	L_0^* (mh) (Note 3)	Winding Area* (in. ²)	Dimensions (in.)	Bobbins	Mounting Hardware
11 mm	1107P-L00-3B7 1107P-L00-3D3 1107P-L00-4C4	1940 865 155	1480 660 120	$1.31N^2 \times 10^{-6}$	0.0083	D ₁ - .445 D ₂ - .362 D ₃ - .181 D ₄ - .081 H ₁ - .087 H ₂ - .132	1107F1L	1107HD
14 mm	1408P-L00-3B7 1408P-L00-3B9 1408P-L00-3D3 1408P-L00-3E 1408P-L00-4C4	2240 1910 1130 2080 200	1350 1150 680 1250 120	$1.66N^2 \times 10^{-6}$	0.015	D ₁ - .559 D ₂ - .465 D ₃ - .232 D ₄ - .122 H ₁ - .110 H ₂ - .167	1408F1D 1408F2D	1408HD (1408H)**
18 mm	1811P-L00-3B7 1811P-L00-3B9 1811P-L00-3D3 1811P-L00-3E 1811P-L00-4C4	3680 2630 1550 3500 265	1680 1200 705 1600 120	$2.19N^2 \times 10^{-6}$	0.029	D ₁ - .716 D ₂ - .596 D ₃ - .293 D ₄ - .122 H ₁ - .142 H ₂ - .214	1811F1D 1811F2D 1811F3D	1811HD (1811H)**
22 mm	2213P-L00-3B7 2213P-L00-3B9 2213P-L00-3D3 2213P-L00-3E 2213P-L00-4C4	4650 3250 1800 4400 300	1860 1300 720 1760 120	$2.50N^2 \times 10^{-6}$	0.046	D ₁ - .858 D ₂ - .716 D ₃ - .364 D ₄ - .177 H ₁ - .181 H ₂ - .269	2213F1D 2213F2D 2213F3D	2213HD (2213H)**
26 mm	2616P-L00-3B7 2616P-L00-3B9 2616P-L00-3D3 2616P-L00-3E 2616P-L00-4C4	6000 4390 2340 5850 390	1850 1350 730 1800 120	$3.25N^2 \times 10^{-6}$	0.063	D ₁ - 1.024 D ₂ - .850 D ₃ - .445 D ₄ - .216 H ₁ - .216 H ₂ - .320	2616F1D 2616F2D 2616F3D	2616HD (2616H)**
30 mm	3019P-L00-3B7 3019P-L00-3D3	7580 2820	1990 740	$3.81N^2 \times 10^{-6}$	0.091	D ₁ - 1.201 D ₂ - 1.000 D ₃ - .524 D ₄ - .217 H ₁ - .256 H ₂ - .377	3019F1D 3019F2L 3019F3L	3019HD
36 mm	3622P-L00-3B5 3622P-L00-3B7 3622P-L00-3D3 3622P-L00-3E	6540 9660 3580 10800	1330 1970 730 2200	$4.91N^2 \times 10^{-6}$	0.116	D ₁ - 1.418 D ₂ - 1.197 D ₃ - .622 D ₄ - .217 H ₁ - .287 H ₂ - .440	3622F1D 3622F2D 3622F3L	3622HD
42 mm	4229P-L00-3B7	10300	2120	$4.85N^2 \times 10^{-6}$	0.217	D ₁ - 1.697 D ₂ - 1.429 D ₃ - .685 D ₄ - .217 H ₁ - .400 H ₂ - .581	4229F1L 4229F2L	4229HD

NOTES:

- A_L and μ_e values are based on two mated pot core halves.
- This group of cores will be permanently marked with core size and material designation: i.e., 1811P . . . 3B9

3. To obtain inductance using values other than 1000 turns, use L_x (mh) = $\frac{A_L \times N^2}{10^6}$; Also $\mu_e = \frac{L(mh)}{L_0}$

4. These part numbers describe half cores only. Two half cores make one set.

* Parameters or accessories listed are common to all cores in their particular size group. Nominal winding area given for a single section bobbin.

** "H" clamp style hardware, noted as such, is available upon request.

FERROXCUBE TRANSFORMER POT CORES

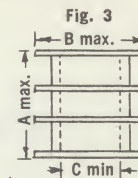
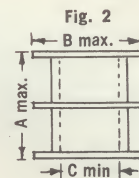
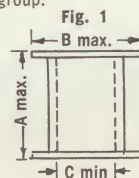
Nom. Core Dia.	Part No.	ELECTRICAL (Note 1)				MECHANICAL*	ACCESSORIES
		A_L ($\pm 25\%$) (mh/1000 turns)	μ_e (Reference)	L_0^* (mh) (Note 3)	Winding Area* (in. ²)	Dimensions (in.)	Bobbins
7 mm	743P133-3E	576	1100	$0.525N^2 \times 10^{-6}$	0.0056	D ₁ - 0.282 D ₂ - 0.200 D ₃ - 0.080 D ₄ - H ₁ - 0.092 H ₂ - 0.138	743F181
9 mm	332P133B4-3E	1400	1100	$1.27N^2 \times 10^{-6}$	0.0053	D ₁ - .377 D ₂ - .291 D ₃ - .167 D ₄ - .079 H ₁ - .090 H ₂ - .148	332F175 332F175B1
45 mm	K5 350 56-3E	13500	2400	$5.64N^2 \times 10^{-6}$	0.160	D ₁ - 1.799 D ₂ - 1.510 D ₃ - .760 D ₄ - .197 H ₁ - .335 H ₂ - .492	P5-055-22
66 mm	K5 350 11-3E	18200	2440	$7.5N^2 \times 10^{-6}$	0.620	D ₁ - 2.657 D ₂ - 2.146 D ₃ - 1.110 D ₄ - H ₁ - .827 H ₂ - 1.102	P4-564-71

NOTES:

1. A_L and μ_e values are based on two mated pot core halves.
 2. This group of cores have one (1) wireway slot.
 3. To obtain inductance using values other than 1000 turns, use L_x (mh) = $\frac{A_L \times N^2}{10^6}$; Also $\mu_e = \frac{L(\text{mh})}{L_0}$
 4. These part numbers describe half cores only. Two half cores make one set.
- * Parameters or accessories listed are common to all cores in their particular size group.

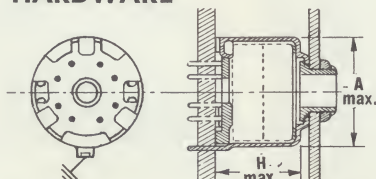
BOBBINS

Part No.	Fig.	A (in.)	B (in.)	C (in.)	Winding Area (sq. in.)
1107F1L	1	0.165	0.350	0.189	0.0083
1408F1D	1	0.216	0.454	0.240	0.015
1408F2D	2	0.216	0.454	0.240	0.014
1811F1D	1	0.279	0.584	0.303	0.029
1811F2D	2	0.279	0.584	0.303	0.027
1811F3D	3	0.279	0.584	0.303	0.025
2213F1D	1	0.358	0.702	0.374	0.046
2213F2D	2	0.358	0.702	0.374	0.043
2213F3D	3	0.358	0.702	0.374	0.040
2616F1D	1	0.429	0.832	0.457	0.063
2616F2D	2	0.429	0.832	0.457	0.059
2616F3D	3	0.429	0.832	0.457	0.056
3019F1D	1	0.508	0.980	0.535	0.091
3019F2L	2	0.508	0.980	0.535	0.085
3019F3L	3	0.508	0.980	0.535	0.082

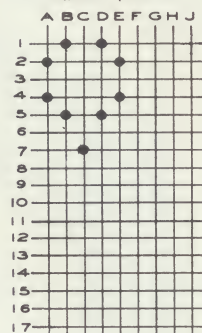


Part No.	Fig.	A (in.)	B (in.)	C (in.)	Winding Area (sq. in.)
3622F1D	1	0.568	1.172	0.645	0.116
3622F2D	2	0.568	1.172	0.645	0.110
3622F3L	3	0.568	1.172	0.645	0.113
4229F1L	1	0.780	1.394	0.709	0.217
4229F2L	2	0.780	1.394	0.709	0.192
743F181	1	0.183	0.191	0.087	0.0056
332F175	1	0.175	0.280	0.176	0.0057
332F175B1	2	0.175	0.280	0.176	0.0053
P5-055-22	2	0.632	1.48	0.771	0.16
P4-564-71	1	1.63	2.10	1.137	0.62

HARDWARE



Grid Location Chart



Typical example: 1811HD

HARDWARE GRID SPACING (0.1" Centers)

Part Number	Coil Pins	Grid Location	No. Ground Pins	Grnd. Pin Location	A (in.)	H (in.)
1107HD	4	A1, A5, E1, E5	1	C5	0.492	0.342
1408HD	6	B2, C1, C3, E1, E3, F2	1	A1	0.614	0.532
1811HD	8	A2, A4, B1, B5, D1, D5, E2, E4	1	C7	0.776	0.654
2213HD	8	A2, A4, B1, B5, D1, D5, E2, E4	1	C8	0.914	0.768
2616HD	8	A5, A7, B3, B9, F3, F9, G5, G7	2	A11, G1	1.100	0.871
3019HD	9	A6, A8, B4, B10, D11, F4, F10, G6, G8	2	A13, G1	1.28	1.00
3622HD	10	A7, A9, B5, B11, D4, D12, F5, F11, G7, G9	2	A15, G1	1.49	1.18
4229HD	10	B8, B10, C6, C12, E5, E13, G6, G12, H8, H10	2	A17, J1	1.77	1.44

NOTE: Part number includes all necessary component parts to complete assembly.
All assemblies except 1107HD and 1408HD are provided with removable bushing and nut.
Typical Printed Circuit Board thickness 0.094".
Typical Panel thickness 0.050", panel hole required 1/32".



FERROXCUBE CORPORATION OF AMERICA/SAUGERTIES, N.Y.



FERROXCUBE CORPORATION OF AMERICA SAUGERTIES, NEW YORK

FERROXCUBE TOROIDS

Bulletin 301

FEATURES AND APPLICATIONS

Toroids offer designers the highest permeability of any core configuration. The reason: a complete absence of an airgap.

Our new 3E2A Ferrite Material has today's highest initial permeability — 5000. This permits an optimum inductance in a much smaller core. Another Ferroxcube feature — all toroids are tumbled to remove sharp edges.

Typical applications of toroids are pulse transformers, wide band transformers, chokes, and small non-critical ($\pm 20\%$) inductors. 3C5 Material, in the three large toroid sizes, is generally used in transformers at higher flux densities. At a frequency of 16 kilocycles/seconds:

$$\mu \geq 3000 \text{ at } B = 1000 \text{ gauss and } +25^\circ\text{C}$$

$$\mu \geq 4000 \text{ at } B = 2000 \text{ gauss and } +100^\circ\text{C}$$

Listed below are Standard, In-Stock Toroids. Other heights, sizes and materials available on special order.

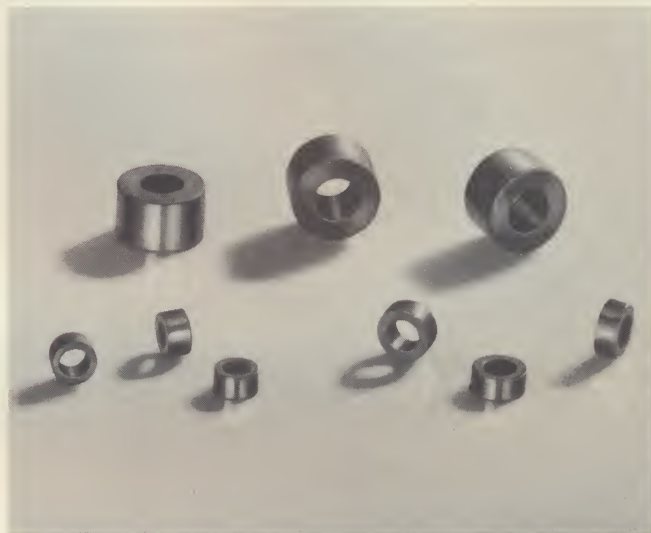
DEFINITIONS

A_L is nominal inductance in millihenrys for 1000 turns of wire. For other inductance values

$$\text{use } L = \frac{N^2 (A_L)}{1000^2}$$

L_0 is the inductance in millihenrys if μ_0 were equal to 1. Actual inductance L , in millihenrys, equals $L_0 \mu_0$.

A_L (and μ_0) are measured at $+25^\circ\text{C}$ temperature, $B \leq 10$ gauss, frequency equals 10 kilocycles/second.



A_e is effective cross-sectional area.
 L_e is effective length of magnetic path.
 μ_0 is nominal initial permeability.

HOW TO ORDER

Specify Ferroxcube Part Numbers and Ferroxcube Material. For example: 213T050-3E2A.

INDUCTANCE GRADING

Upon request, Ferroxcube will grade 3E2A production shipments into $\pm 5\%$ groups. This service, which gives you added design flexibility, is available with a slight additional charge.

STANDARD TOROIDS — IN STOCK

PART NUMBER	FERROXCUBE MATERIAL	$A_L (\pm 20\%)$ mh / 1000 turns	μ_0 (ref.)	NOMINAL DIMENSIONS			A_e (cm ²)	L_e (cm)	L_0 (mh)	Window Area of I.D. in circular mills
				O.D. (in.)	I.D. (in.)	HT. (in.)				
213T050	3E2A	850	4470	.190	.090	.050	.0161	1.07	$1.9N^2 \times 10^{-7}$	8,100
1041T060	3E2A	890	4495	.230	.120	.060	.0213	1.35	1.98 " "	14,400
1041T060	4C4	25	125	.230	.120	.060	.0213	1.35	1.98 " "	14,400
266T125	3E2A	2135	4830	.375	.187	.125	.076	2.155	4.41 " "	35,000
266T125	4C4	55	125	.375	.187	.125	.076	2.155	4.41 " "	35,000
768T188	3E2A	2750	5000	.500	.281	.188	.133	3.03	5.52 " "	79,000
846T250	3E2A	3055	5000	.870	.540	.250	.270	5.52	6.06 " "	291,000
K3-005-02	3E	1688	2700	1.142	.748	.295	.375	7.43	6.34 " "	560,000
K3-005-00	3E	2422	2700	1.417	.905	.394	.650	9.11	8.97 " "	818,000
K3-005-01	3E	3639	2700	1.417	.905	.591	.975	9.11	13.46 " "	818,000
528T500	3C5		1000	1.500	.750	.500	1.21	8.63	17.6 " "	562,500
400T750	3C5		1000	2.000	1.250	.750	1.81	12.74	17.9 " "	1,562,500
144T500	3C5		1000	2.900	1.530	.500	2.21	17.10	16.2 " "	2,340,000



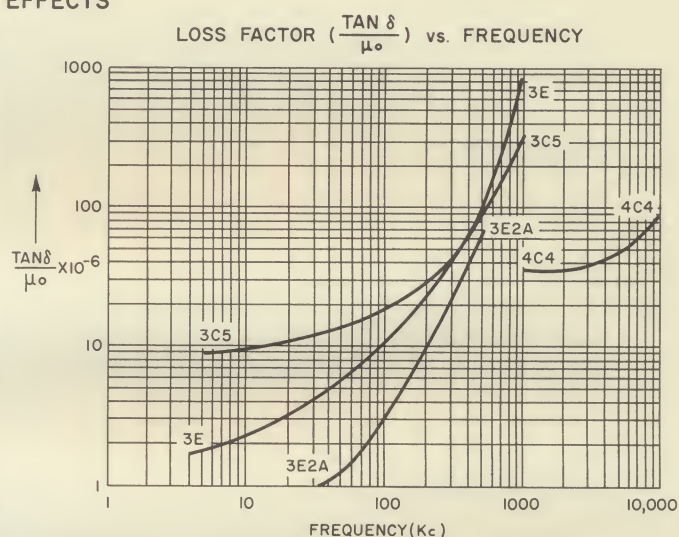
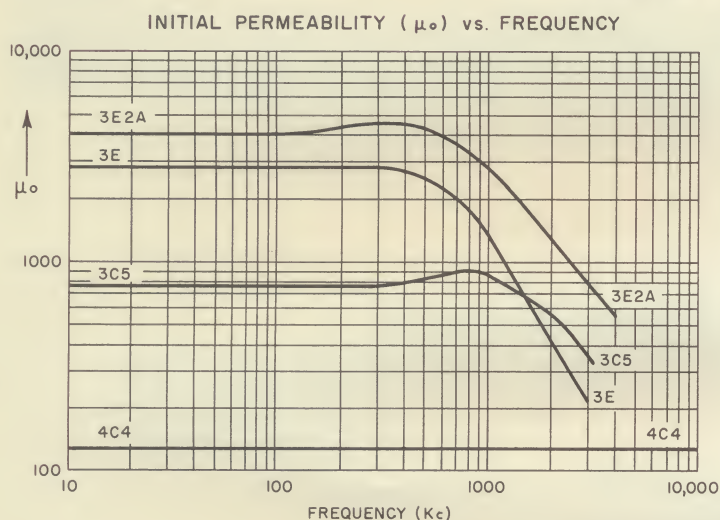
FERROXCUBE CORPORATION OF AMERICA/SAUGERTIES, N.Y.

BASIC CHARACTERISTICS OF FERROXCUBE MATERIALS

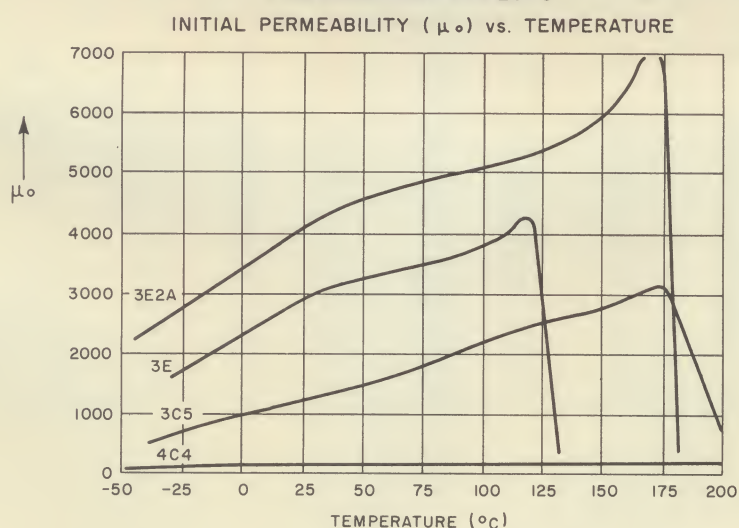
Parameter	MATERIAL			
	3E2A	3E	3C5	4C4
μ_o minimum typical range	3500 4000-6000	2000 2200-3300	650 700-1400	100 100-125
B max, Gauss, typical	3600 @ H = 2. Oers.	3000 @ H = 2. Oers.	3600 @ H = 2. Oers.	3000 @ H = 10 Oers.
DC H_c Oersteds, typical	0.08	0.1	0.2	3.0
Curie Temperature, °C.	≥ 170	≥ 125	≥ 200	≥ 300
Temperature Factor of μ_o	$+2. \times 10^{-6}$	$+4. \times 10^{-6}$	$+2. \times 10^{-6}$	0 to -10×10^{-6}
Temperature Range °C	+20° to +70°C	+20° to +50°C	+20° to +50°C	+20° to +55°C

MATERIAL COMPARISONS

FREQUENCY EFFECTS



TEMPERATURE EFFECTS



FERROXCUBE CORPORATION OF AMERICA/SAUGERTIES, N.Y.

MEETING THE NEED FOR UTMOST RELIABILITY IN FERRITE COMPONENTS



**FERROXCUBE
POT CORES,
TOROIDS, E, U & I
CORES, RODS &
TUBES, CUSTOM
FERRITE PARTS**



FERROXCUBE CORPORATION OF AMERICA



SAUGERTIES, NEW YORK

OTHER FERROXCUBE PRODUCTS: MEMORY CORES, PLANES, STACKS AND SYSTEMS • LIGHT, TEMPERATURE AND VOLTAGE DEPENDENT RESISTIVE ELEMENTS FOR CONTROL AND SENSING APPLICATIONS

FERROXCUBE CORPORATION OF AMERICA  SAUGERTIES, NEW YORK

FOREMOST IN THE FIELD OF FERRITE